08/18/04

AF/3714
IFW

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICANT: **THORNTON**	§	
	§	EXAMINER: SOTOMAYOR
SERIAL NO: **09/699,805**	§	
	§	GROUP ART UNIT: 3714
FILED: **10/30/00**	§	
	§	DOCKET: 98006/17UTL
FOR: **APPARATUS FOR SIMULATING A PULSE AND HEART BEAT AND METHODS FOR USING SAME TO TRAIN MEDICAL PROFESSIONALS**	§	

EV 405 879 030 US	**CERTIFICATE OF MAIL BY EXPRESS MAIL**	17 August 2004
Number		Date of Deposit

I hereby certify that this paper or fee is being deposited with the United States Postal Service "Express Mail Post Office to Addressee" service under 37 C.F.R. § 1.10 on the date indicated above and is addressed to the:

Commissioner of Patent
MS Appeal Brief
P.O. Box 1450
Alexandria, VA 22313-1450

Robert W. Strozier — **12 May 2003** Date of Signature

BRIEF ON APPEAL

(1) *Real Party in Interest*

The real party in interest is the Board of Regents of the University of Texas System, the assignee of the entire interest in the above application.

(2) *Related Appeals and Interferences*

There are no other appeals or interferences known to appellant, appellant's legal representative or the assignee which will directly affect, or be directly affected by, or have a bearing on the Board's decision in this appeal.

(3) *Status of Claims*

This appeal is from the Final Rejection of all pending claims dated 17 December 2003. Appellant has yet to receive an Advisory Action.

(4) *Status of Amendments*

Claims 1 and 2 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Eggert et al. (US 6193519) in view of Lampotang et al. (US 5769641), where the Examiner contends:

> Regarding claim 1, Eggert et al discloses a simulation apparatus comprising a plurality of electronic signals corresponding to a heart beat (Col 4, lines 46-62), a tactile pulse signal to detect a pulse signal discernable by touch (Col 6, lines 26-40), and an audio simulator for generating a heart beat signal (Col 4, lines 46-62). Eggert et al does not specifically disclose the generation ora pulse signal or a correlated heart sound. However, Lampotang et al teaches a simulation system which generates a pulse signal and a synchronized heart sound. Therefore; it would have been obvious to one of ordinary skill in the art at the time of invention to provide a system comprising a plurality of electronic signals corresponding to a heart beat, a tactile pulse signal to simulate a pulse signal discernable by touch, and an audio simulator for generating a correlated heart beat signal. Combining the system disclosed by Eggert et al with the teaching of Lampotang et al produces a system that closely corresponds to a real patient.
>
> Regarding claim 2, Eggert et al discloses a simulation apparatus comprising a plurality of electronic signals corresponding to a heartbeat (Col 4, lines 26-45) distributed in an appropriate fashion, left side or right side, required by the training regimen (Col 6, lines 40-52), and an audio simulator for generating a heart beat signal (Col 4, lines 26-45) that may be heard through a stethoscope. Eggert et al does not specifically disclose the generation of a pulse signal or a correlated heart sound. However, Lampotang et al teaches a simulation system which generates a pulse signal and a synchronized heart sound. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to provide a system comprising a plurality of electronic signals corresponding to a heart beat, a tactile pulse signal to simulate a pulse signal discernable by touch, and an audio simulator for generating a correlated heartbeat signal in an appropriate position, whether that is the left or right side. Combining the system disclosed by Eggert et al with the teaching of Lampotang et al produces a system that provides more flexibility for training staff.

Claims 1 and 2 where previously amended, but were not amended in Appellant's response to the Examiner's Final Office Action.

Claims 8-27 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Eggert et al. (US 6193519) in view of Lampotang et al. (US 5769641) and further in view of Takashina et al. (US 6461165), where the Examiner contends:

> Regarding claim 9, Eggert etal discloses that the audio simulator housed within a housing (Col 4, lines 37-44 and Fig. 2). Eggert et al does not specifically disclose a tactile simulator housed within a housing. However , Takashina et al. teaches that a tactile simulator may be housed within a housing that simulates a manikin (Col 2, lines 22-35). Therefore, it would have been obvious to one of ordinary skill in 1he art at the time of invention to provide a simulator with audio and tactile simulators housed within a housing. Combining the system disclosed by Eggert et al with the teaching of Takashina et al provides a system that is more self- contained and easily used.
>
> Regarding claims 11 and 17, Eggert et al discloses that the audio simulator housing is contained by a simulator that simulates an upper part ora human body including simulated chest and arm portions (Col 2, lines 27-54 and Figure 2). Eggert et at does not specifically disclose a tactile simulator housing that is contained by a simulator that simulates an upper part of a human body including simulated chest and arm portions. However, Takashina et al teaches that a tactile simulator may be housed within a housing that simulates a manikin including simulated chest and arm portions. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to provide a simulator with audio and tactile simulators housed within a simulator that simulates an upper part of the human body including simulated chest and arm portions. Combining the system disclosed by Eggert et al with the teaching of Takashina et at. provides a system that better represents the human body.
>
> Regarding claims 8, 10, 13, 16, 19, and 27 Eggert et al discloses a simulator designed to represent a patient, such as a manikin, with a plurality of sensors and electronic signals to represent a plurality of physical diagnostic signals such as anyone of a plurality of body noises including heart and lung sounds (Col 4, lines 46-62). Eggert et al does not specifically disclose that a tactile pulse simulator comprises any one of a tactile switch, collapsible tube apparatus o r p iezoelectric t ransducer (claims 8 a nd 1 6) o f t hat t he t actile simulator comprises a resilient cover . over a tactile switch (claims 10, 13 and 19). However, Takashina etal teaches that a simulated pulse may be derived from a collapsible tube apparatus built within a simulator comprising a manikin (Col 2, lines 22-35). Takashina also teaches that the tube apparatus is made of a soft rubber or synthetic resin so as to reproduce feeling in a finger that is similar to the human body diagnosis (Col 2, lines 36-39). Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to provide a simulator comprising a manikin with a tactile pulse

simulator consisting of a collapsible tube apparatus with a resilient cover over a tactile switch. Combining the patient simulator disclosed by Eggert et al with the teaching of Takashina et al produces a training simulator that has the appearance of a human system and provides a realistic pulse tactile signal.

Regarding claim 12, Eggert et al discloses a simulator, apparatus wherein pulse simulation signals are detected in a simulated arm in a first housing and audio is detected from the chest, a second housing (Col 6, lines 27-52). Eggert et al does not specifically disclose that the tactile sensor for the pulse is located in the wrisf of the simulator (claim 12). However, Takashina teaches that pulsation sensors are located at all major correspondence points with the human body the simulator is designed to represent (Fig. 2). Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to provide a simulator wherein the pulse simulator is located in a simulated wrist and the audio simulator located in the _chest portion. Combining the simulator disclosed by Eggert et al with the teaching of Takashina produces a simulator that most closely matches the audio and pulsation locations ona human body.

Regarding claim 14, Eggert et al discloses a simulator apparatus wherein pulse simulation signals are detected in a simulated arm ina first housing and audio is detected from the chest (Col 6, lines 26-52). Eggert et aI does not specifically disclose that the tactile sensor and the audio sensor are located in two separate housings. However, Takashina teaches that pulsation sensors are located at all major correspondence points with the human body the simulator is designed to represent (Fig. 2) and that the audio sensor may be located in a second housing (Col 2, lines 52-56). Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to provide a simulator wherein the pulse simulator is located in a simulated wrist and the audio simulator located in the chest portion. Combining the simulator disclosed by Eggert et al with the teaching of Takashina produces a simulator that provides a more accurate teaching methodology for students.

Regarding claim 15, Eggert et a1 discloses a simulator apparatus wherein pulse simulation signals are detected in a simulated arm and audio is detected from the chest (Col 6, lines 26.-52). Eggert et al does not specifically disclose that the tactile sensor for the pulse is located in the wrist of the simulator or that the tactile simulator comprises a resilient cover over a tactile switch. However, Takashina teaches that pulsation sensors are located at all major correspondence points with the human body the simulator is designed to represent (Fig. 2) and that a tube apparatus is made of a soft rubber or synthetic resin so as to reproduce feeling in a finger that is similar to the human body diagnosis (Col 2, lines 36-39). Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to provide a simulator wherein the pulse simulator is located in a simulated wrist and that

the tactile simulator comprises a resilient cover over a tactile switch. Combining the simulator disclosed by Eggert et al with the teaching of Takashina produces a simulator in which diagnosis points are located in a fashion to emulate the human body for better training of medical professionals.

Regarding claims 18, Eggert et al discloses a simulator apparatus wherein pulse simulation signals are detected in a simulated arm (Col 6, lines 26-52). Eggert et at does not specifically disclose that the tactile sensor for the pulse is located in either wrist of the simulator. However, Takashina teaches that pulsation sensors are located at all major correspondence points with the human body the simulator is designed to represent (Fig. 2) including pulsation points in both left and right wrists. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to provide a simulator wherein the pulse simulator is located in both a right and left simulated wrist in the body of the simulator. Combining the simulator disclosed by Eggert et al with the teaching of Takashina produces a simulator with the ability for multiple use by training professionals.

Regarding claims 20 and 22, Eggert et al discloses a simulator apparatus for generating pulse and heart beat simulations comprising a simulated upper body portion with a chest and left and right arm portions, a playback device for generating electronic signals corresponding to pulse and heartbeat signals, a tactile pulse simulator and a heart beat signal within the chest housing of the simulator with the heart beat detectable by a stethoscope (Col 2 and Col 3). Eggert et al doe~ not specifically disclose a left and right pulse signal, or that the pulse signal is a pressure pulse signal. However, Takashina teaches that a pressure pulse signal may be generated through flexible tubing (Col 2, lines 23-53) and that pulsation signals are sent to detection locations on both the right and left wrist of a manikin simulator (Fig. 2). Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to provide a training simulator apparatus for generating pulse and heart beat simulations comprising a simulated upper body portion, a playback device for generating electronic signals corresponding to pulse and heartbeat signals, a tactile pulse simulator and a heart beat signal within the chest housing of the simulator with the heart beat detectable by a stethoscope with detectable pulsation signals in a left and right wrist location. Combining the apparatus disclosed in Eggert et al. with the teaching of Takashina produces a training simulator that closely resembles the subjects for which the simulator is designed providing a realistic training environment for medical professionals.

Regarding claim 21 and 26, Eggert et al discloses a simulator designed to represent a patient, such as a manikin, with a plurality of sensors and electronic signals to represent a plurality of physical diagnostic signals such as any one of pulse, heart beat, or lung sounds (Col 4, lines 25- 62). Eggert et

al does not specifically disclose that the tactile, pulse simulator comprises any one of a tactile switch, collapsible tube apparatus or piezoelectric transducer.. However, Takashina et al teaches that a simulated pulse may be derived from a collapsible tube apparatus as a tactile pulse simulator built within a simulator comprising a manikin (Col 2, lines 22-35). Therefore it , would have been obvious to one of ordinary skill in the art at the time of invention to provide a simulator comprising a manikin with a tactile pulse simulator. Combining the patient simulator disclosed by Eggert et al with the teaching of Takashina et al produces a training simulator that has the appearance of a human system and provides a realistic pulse tactile signal.

Regarding claim 23, Eggert et al discloses a simulator apparatus wherein pulse simulation signals are detected in a simulated arm (Col. 6, lines 26-52). Eggert et al does not specifically disclose that the tactile sensor for the pulse is located in either wrist of the simulator. However , Takashina teaches that pulsation sensors are located at all major correspondence points with the human body the simulator is designed to represent (Fig. 2) including pulsation points in both left and right wrists. Therefore, if would have been obvious to one of ordinary skill in the art at the time of invention to provide a simulator wherein the pulse simulator is located in both a right and left simulated wrist in the body of the simulator. Combining the simulator disclosed by Eggert et al with the teaching of Takashina produces a simulator with the ability for multiple use by raining professionals.

Regarding claim 24, Eggert et al discloses a simulator apparatus wherein pulse simulation signals are detected in a simulated arm and audio is detected from the chest (Col 6, lines 26-52). Eggert et at does not specifically disclose that the tactile sens6rforthe pulse is located in the wrist of the simulator or that the tactile simulator comprises a resilient cover over a tactile switch. However, Takashina teaches that pulsation sensors are located at all major correspondence points with the human body the simulator is designed to represent (Fig. 2) and that a tube apparatus is made of a soft rubber or synthetic resin so as to reproduce feeling in a finger that is similar to the human body diagnosis (Col 2,lines 36-39). Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to provide a simulator wherein the pulse simulator is located in a simulated wrist and that the tactile simulator comprises a resilient cover over a tactile switch. Combining the simulator disclosed by Eggert et al with the teaching of Takashina produces a simulator in which diagnosis points are located in a fashion to emulate the human body for better training of medical professionals.

Regarding claim 25, Eggert et al discloses a simulator apparatus for generating pulse and heart beat simulations comprising a simulated upper body portion with a chest and left and right arm portions, a playback device for generating electronic signals corresponding to pulse and heartbeat signals, a

tactile pulse simulator and a heart beat signal withing the chest housing of the simulator with the heart beat detectable by a stethoscope (Col 2 and Col 3). Eggert et al does not specifically disclose a left and right pulse signal, or that the pulse signal is a pressure pulse signal. However, Takashina et al teaches that a pressure pulse signal may be generated through flexible tubing (Col 2, lines 25-53) and that pulsation signals are sent to detection locations on both the right and left wrist of a manikin simulator (Fig. 2). Therefore, it would have been obvious to one of ordinary skill in the art to provide a simulator apparatus for generating pulse and heart beat simulations comprising simulated upper body portion with a chest and left and right arm portions, a playback device for generating electronic signals corresponding to pulse and heartbeat signals, a tactile pulse simulator and a heart beat signal within the chest housing of the simulator with the heart beat detectable by a stethoscope as disclosed by Eggert et al with detectable pulsation signals in a left and right wrist location as taught byt Takashina et al for the purposes of producing a training simulator that closely resembles the subjects for which the simulator is designed providing a realistic training environment for medical professionals.

Claims 8-27 where either previously amended or previously added, but were not amended in Appellant's response to the Examiner's Final Office Action.

(5) ***Summary of Invention***

The present invention relates to apparatuses for simulating a pulse and correlated heart sounds so that medical students can be properly trained in the proper use of a stethoscope and touch (feeling either a right side pulse or a left side pulse) to recognize and identify cardiovascular disorders and diseases. The heart sounds are actual recording of heart sounds from patients with normal or abnormal cardiovascular functions. The heart sounds are reproduced on a unit having a microphone in electronic communication with a playback unit. The heart sounds unit has an area upon which the working end of a stethoscope is rested. The correlated patient's pulse is generated by a tactile unit having a tactile device that generated pulses discernible to a finger placed properly over the tactile device. The tactile device is also in electronic communication with the playback unit. Thus, when the playback unit is activated, specific recorded heart sounds are forwarded to the heart sound unit and

correlated pulse commands are sent to the pulse simulation unit. A medical student then places the working end of his/her stethoscope on the heart sound unit hearing area and places a finger on the pulse simulator. The invention can use a single pulse simulator or two pulse simulators; one for simulated right side pulse and one for simulated left side pulse. Preferably, the invention has both a right side and a left side pulse so that medical students can switch back an forth between right side and left side simulated pulses. Certain cardiovascular disorders are more easily discerned by noting a difference between the right side pulse and correlated heart sounds and the left side pulse and correlated heart sounds.

(6) ***Issues***

(A) Whether the inventions encompassed by claims 1 and 2 and 8-27 are patentable over Eggert et al. (US 6193519) in view of Lampotang et al. (US 5769641) or Eggert et al. (US 6193519) in view of Lampotang et al. (US 5769641) further in view of Takashina et al. (US 6461165), respectively as set forth in the Examiner's contentions included above.

(7) ***Grouping of Claims***

All claims relate to apparatuses for simulating heart sounds and correlated simulated pulses using a playback unit, a heart sound generator unit to be heard through a stethoscope and at least on pulse simulations unit for producing touch discernible pulses correlated to the heart sounds. The playback unit sending electronic singles to each unit.

(8) ***Argument***

(A) Appellant disagrees with the Examiner's reading of the primary reference Eggert et al. While Eggert et al. does produce heart and other chest sounds, it does not disclose the generation of a simulated pulse using a tactile device. However, the Examiner contends that Eggert et al. does disclose the use of a tactile device capable of generating a simulated pulse. This reading of Eggert et al. is simply wrong. The only disclosure in Eggert et al. to a tactile device is to a simple tactile on/off device to evidence a correct

contact between the simulated finger and a finger cuff. The tactile switches of Eggert et al are designed to ensure proper attachment of the cuffs **18d** and **18e** to the manikin:

> FIGS. 5a-5d illustrate details of the **BP** cuff **18*d*** and the **pulse oximeter** finger cuff **18*e***. The cuffs **18*d*, 18*e*** are configured together wherein a cable **86** is provided that connects to the BP/OSAT/HEARTRATE port **48** and bifurcates into the respective cuffs. Electrical leads **86a** and **86b** connected to the respective cuffs **18*d*** and **18*e*** are depicted at one end of the cable **86** in FIG. 5b for connection to the EKG port **48** (FIG. 3). As shown in FIGS. 5c-5d with respect to the finger cuff **18*e***, a tactile switch **88** connected to a line **90** of the cable **86** is mounted in the finger cuff and is activated to complete a circuit when the cuff is secured properly with velcro (male) **91*a*** and velcro (female) **91*b*** to the finger of the manikin **28**. Similar switch circuitry, though not shown, is contained in the BP cuff **18*d***.

Eggert et al. at Col. 6, ll. 26-40 (emphasis added). The cuffs of Eggert et al. are associated with an oximeter device and a blood pressure device. An oximeter device is defined as follows: "A photoelectric device that measures the amount of oxygen inblood and other fluids." http://www.books.md/O/dic/oximeter.php. The switches of Eggert et al. are designed solely to complete a circuit, not to generate touch discernable simulated pulse. While a blood pressure device is designed to measure blood pressure. **The only purpose the tactile switches of Eggert et al. serve is to ensure that the student can properly attach an oximeter to the finger of a patient and to properly attach a blood pressure device to a patient.** The Examiner's position on this matter is simply unsupported by the disclosure of Eggert et al. Eggert et al. simply does not disclose, teach or suggest an apparatus including a tactile response system for generating a touch discernible pulse simulation and an audio response system for reproducing heart sounds in a correlated manner.

9. Moreover, Eggert et al. uses virtual instruments. The entire purpose of the present invention is to require a student to use his/her senses and an actual stethoscope to learn the proper use of the stethoscope in the care and early diagnosis of metal diseases and dysfunctions. The problem solved by this invention is the fact that medical students often graduate without basic skills in utilizing their fingers and a stethoscope as a first line diagnostic for detecting heart and/or circulatory abnormalities. Using virtual instruments regardless of their sophistication does not over come this problem.

10. Nothing in Eggert et al. discloses, teaches or suggests combining two different sensory output devices (speaker and a tactile output device) to educate a student on the proper use of a hands on technique for front line diagnostics using correlated output signals. **Again, Eggert et al. only uses tactile switches to complete a circuit ensuring that the student has properly positioned an oximeter - oxygen sensor and a blood pressure device on a simulated patient.**

11. Lampotang et al. does nothing to eliminate the basic deficiencies of Eggert et al. While Lampotang et al. does relate to a simulator for simulating human responses during medical procedures, the manikin is capable of generating lung and heart sounds, but only the lung sounds are synchronized with anything: "normal and abnormal breath sounds are synchronized with the bellows movement." Lampotang et al. at Col. 12, ll. 38-40. As far as Applicant's attorney can determine, the Lampotang et al. manikin does not include any tactile output devices. Applicant's attorney searched the patent extensively for every conceivable verbal description of such as a device and found none.

12. **Therefore, a combined Eggert et al. and Lampotang et al. device would have no mechanism of outputting a touch discernible pulse simulation correlated to heart sounds, because neither reference includes a device that a student can touch and discern a pulse.** Thus, the combined device fails to include or suggest a touch output device or correlating touch and sound, the two key ingredients in a device of this invention designed to train medical students in the proper use of a stethoscope and touch as a front line diagnostic.

13. Applicant hereby formally **antedates** Takashina et al. as the date of invention is prior to the July 6, 1999 United States filing date of Takashina et al. as evidenced by the attached invention disclosure statement for the University of Texas Medical Branch.

14. But even if one includes Takashina et al., Takashina et al. uses air to generate a simulated pulse "**without generating any mechanical vibration.**" Takashina et al. at Col 2, ll. 24-25 (emphasis added). Adding Takashina et al. to Eggert et al. and Lampotang et al. gives rise to an air activated pulse/heart sound simulator. But Takashina et al. requires pulse

generation without **mechanical vibration**. This teaches squarely away from the present invention that generates a mechanical vibration in the form of a tactile output producing a mechanical vibration or pulses in a material such as a piezoelectric transducer to simulate a pulse.

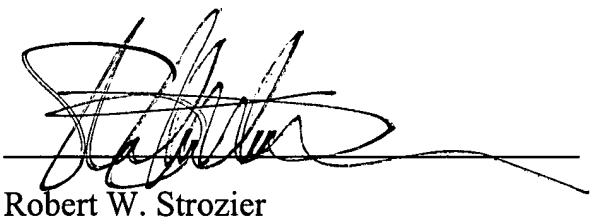
15. The present invention is further distinguished from these references in that the pulses are mechanically generated by a touch discernible tactile subsystem and the pulse is correlated with heart sounds generated by an audio subsystem discernible with a stethoscope. The apparatus requires the medical students to use their hears (through a real stethoscope) and their sense of touch (through a tactile pulse generator) to learn to identify normal and abnormal cardiovascular properties. Nothing in these references discloses, teaches or suggests such a simple and straight forward approach.

16. While it is true that the apparatus can be part of a simulated body part. The apparatus works for its intended purpose with a playback unit connected to a heart sound unit and a pulse simulation unit simply placed on a table.

17. Appellant believes that the apparatuses of this invention are patentably distinct over the cited references for all the stated reasons and urge reversal of the Examiner's Final Rejection.

If additional information or communications are needed during the pendency of this Appeal, the Patent Office can contact Applicant's attorney at 713.977.7000 or by email at rwstroz@flash.net.

Respectfully submitted,



Date: **17 August 2004**

Robert W. Strozier

Registration No. 34,024

(9) *Appendix - Copy of Claims involved in this Appeal*

This appeal is from the final rejection of claims 1-2 and 8-27 which read as follows:

1.**(previously amended)** An apparatus for simulating a pulse and correlated heart beat of an animal, the apparatus comprising a playback device for generating a first electronic signal corresponding to a pulse and a second electronic signal corresponding to a correlated heart beat, a tactile pulse simulator for receiving the pulse signal and generating a pressure pulse discernible by touch and an audio simulator for receiving the correlated heart beat signal and recreating the heart beat to be heard through a stethoscope.

2.**(previously amended)** An apparatus for simulating a right side pulse and a left side pulse and correlated heart beat of an animal, the apparatus comprising a playback device for generating a first electronic signal corresponding to the right side pulse, a second electronic signal corresponding to the left side pulse and a third electronic signal corresponding to a correlated heart beat, a first tactile pulse simulator for receiving the right pulse signal and generating a pressure pulse discernible by touch, a second tactile pulse simulator for receiving the left pulse signal and generating a pressure pulse discernible by touch and an audio simulator for receiving the correlated heart beat signal and recreating the heart beat to be heard through a stethoscope.

3.**(withdrawn)**

4.**(withdrawn)**

5.**(withdrawn)**

6.**(withdrawn)**

7.**(withdrawn)**

8.**(previously added)** The apparatus of claim 1, wherein the tactile pulse simulator

comprises a tactile switch, collapsible tube apparatus or piezoelectric transducer.

9.(**previously added**) The apparatus of claim 1, wherein the tactile pulse simulator and the audio simulator are housed within a housing.

10.(**previously added**) The apparatus of claim 9, wherein the tactile pulse simulator comprises a resilient cover covering a tactile switch.

11.(**previously amended**) The apparatus of claim 9, wherein the housing comprises a simulated upper part of a human body including a simulated chest portion and simulated arm portion.

12.(**previously amended**) The apparatus of claim 11, wherein the tactile pulse simulator is located in the arm portion at a wrist portion corresponding to a location used by medical professionals to detect and monitor a patient's pulse and the audio simulator is located within the chest portion.

13.(**previously added**) The apparatus of claim 12, wherein the tactile pulse simulator comprises a resilient cover covering a tactile switch.

14.(**previously added**) The apparatus of claim 1, wherein the tactile pulse simulator is within in a first housing and the audio simulator is within a second housing.

15.(**previously amended**) The apparatus of claim 14, wherein the first housing simulates a human wrist and the tactile pulse simulator comprises a resilient cover covering a tactile switch and is located at a position in the wrist corresponding to a position in a patient where a pulse is detected and monitored by a medical professional.

16.(**previously added**) The apparatus of claim 2, wherein the tactile pulse simulators comprise tactile switches, collapsible tube apparatuses or piezoelectric transducers.

17.(**previously amended**) The apparatus of claim 2, wherein the tactile pulse simulators and the audio simulator are housed within a housing, where the housing comprises a simulated upper part of a human body including a simulated chest portion, a simulated right arm portion and a simulated left arm portion.

18.(**previously added**) The apparatus of claim 17, wherein the right pulse tactile pulse simulator is located in the right arm portion at a right wrist portion corresponding to a location used by medical professionals to detect and monitor a patient's right pulse, the left pulse tactile pulse simulator is located in the left arm portion at a left wrist portion corresponding to a location used by medical professionals to detect and monitor a patient's left pulse and the audio simulator is located within the chest portion.

19.(**previously added**) The apparatus of claim 18, wherein the tactile pulse simulators comprise a resilient cover covering a tactile switch.

20.(**previously added**) An apparatus for simulating a right side pulse and a left side pulse and correlated heart beat of a human, the apparatus comprising:

a housing including:

a simulated upper human body portion having:

a chest portion,

a right arm portion, and

a left arm portion;

a playback device for generating a first electronic signal corresponding to the right side pulse, a second electronic signal corresponding to the left side pulse and a third electronic signal corresponding to a correlated heart beat;

a first tactile pulse simulator for receiving the right pulse signal and generating a pressure pulse discernible by touch, where the first tactile pulse simulator is located at an lower inner arm position in the right arm of the housing so that the right pulse can be felt;

a second tactile pulse simulator for receiving the left pulse signal and generating a pressure pulse discernible by touch, where the second tactile pulse simulator is located at an inner wrist position in the left arm of the housing; and

an audio simulator for receiving the heart beat signal and generating an audible recreation of the correlated heart beat, where the audio simulator is located in the chest portion of the housing so that the heart beat can be heard through a stethoscope position on a surface of the chest portion of the housing.

21.(**previously added**) The apparatus of claim 20, wherein the tactile pulse simulators comprise tactile switches, collapsible tube apparatuses or piezoelectric transducers.

22.(**previously added**) The apparatus of claim 20, wherein the tactile pulse simulators and the audio simulator are housed within a housing, where the housing comprises a simulated an upper part of a human body including a simulated chest portion, a simulated right arm portion and a simulated left arm portion.

23.(**previously added**) The apparatus of claim 22, wherein the right pulse tactile pulse simulator is located in the right arm portion at a right wrist portion corresponding to a location used by medical professionals to detect and monitor a patient's right pulse, the left pulse tactile pulse simulator is located in the left arm portion at a left wrist portion corresponding to a location used by medical professionals to detect and monitor a patient's left pulse and the audio simulator is located within the chest portion.

24.(**previously added**) The apparatus of claim 23, wherein the tactile pulse simulators comprise a resilient cover covering a tactile switch.

25.(**previously added**) An apparatus for simulating a right side pulse and a left side pulse and correlated heart beat of a human, the apparatus comprising:

a playback device for generating a first electronic signal corresponding to the right side pulse, a second electronic signal corresponding to the left side pulse and a third electronic signal corresponding to a correlated heart beat;

a first housing including a first tactile pulse simulator for receiving the right pulse signal and generating a pressure pulse corresponding to a right arm pulse discernible by touch;

a second housing including a second tactile pulse simulator for receiving the left pulse signal and generating a pressure pulse corresponding to a left arm pulse discernible by touch; and

a third housing including an audio simulator for receiving the heart beat signal and generating an audible recreation of the correlated heart beat and designed to be heard through a stethoscope position on a surface of the housing.

26.(**previously added**) The apparatus of claim 25, wherein the tactile pulse simulators comprise tactile switches, collapsible tube apparatuses or piezoelectric transducers.

27.(**previously added**) The apparatus of claim 25, wherein the tactile pulse simulators comprise a resilient cover covering a tactile switch.